

In the Claims:

Please cancel claims 1-55 and add new claims 56-150 as follows.

1-55 (Canceled)

56. (New) Powered side circuitry for digital direct access arrangement circuitry for terminating a phone line connection at a user end of a phone line, comprising:

a communication interface capable of being coupled to an external user end device;

an isolation interface capable of communicating digitally with user end phone line side circuitry through a user end isolation barrier that comprises a plurality of isolation elements; and

encode circuitry within said isolation interface to generate an encoded digital differential signal from a digital data stream for transmission across at least two of the isolation elements of said isolation barrier, the at least two isolation elements comprising at least a first isolation capacitor and a second isolation capacitor, and the isolation interface being capable of communicating bi-directionally across said first and second isolation capacitors of said isolation barrier;

wherein said encoded digital differential signal comprises control data added to said digital data stream and wherein said encoded digital differential signal comprises framing data added to said digital data stream for data synchronization within said phone line side circuitry;

wherein the powered side circuitry is configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements; and

wherein the powered side circuitry is configured so that power is capable of being provided from the powered side circuitry to the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards.

57. (New) The powered side circuitry of claim 56, wherein the powered side circuitry is further configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor.

58. (New) The powered side circuitry of claim 56, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

59. (New) The powered side circuitry of claim 56, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

60. (New) Powered side circuitry for digital direct access arrangement circuitry for terminating a phone line connection at a user end of a phone line, comprising:

a communication interface capable of being coupled to an external user end device;

an isolation interface capable of communicating digitally with user end phone line side circuitry through a user end isolation barrier that comprises a plurality of isolation elements; and

encode circuitry within said isolation interface to generate an encoded digital differential signal from a digital data stream for transmission across at least two of the isolation elements of said isolation barrier, the at least two isolation elements comprising at least a first isolation capacitor and a second isolation capacitor, and

the isolation interface being capable of communicating bi-directionally across said first and second isolation capacitors of said isolation barrier;

wherein said encoded digital differential signal comprises control data added to said digital data stream and wherein said encoded digital differential signal comprises framing data added to said digital data stream for data synchronization within said phone line side circuitry;

wherein the powered side circuitry is configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor;

wherein the powered side circuitry is configured so that power is capable of being provided from the powered side circuitry to the phone line side circuitry to generate at least one power supply within the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards; and

wherein the encoded digital differential signal includes both data information and control information.

61. (New) The powered side circuitry of claim 60, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

62. (New) The powered side circuitry of claim 60, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

63. (New) Phone line side circuitry for digital direct access arrangement circuitry for terminating a phone line connection, comprising:

a communication interface that is capable of being coupled to phone lines;

an isolation interface that is capable of communicating digitally with powered side circuitry through an isolation barrier that comprises a plurality of isolation elements; and

decode circuitry within said isolation interface to generate a decoded digital signal from an encoded digital differential signal received from said powered side circuitry across at least two of the isolation elements of said isolation barrier, the at least two isolation elements comprising at least a first isolation capacitor and a second isolation capacitor, and the isolation interface being capable of communicating bi-directionally across said first and second isolation capacitors of said isolation barrier;

wherein said encoded digital differential signal comprises control data added to a digital data stream;

wherein the phone line side circuitry is configured to receive a clock signal from the powered side circuitry through at least one of the plurality of isolation elements; and

wherein the phone line side circuitry is configured so that power is capable of being received by the phone line side circuitry from the powered side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards.

64. (New) The phone line side circuitry of claim 63, wherein said encoded digital differential signal comprises framing data added to a digital data stream for data synchronization within said phone line side circuitry.

65. (New) The phone line side circuitry of claim 63, wherein signals communicated through said communication interface comprises analog data signals.

66. (New) The phone line side circuitry of claim 63, wherein said communication interface is configured to be coupled to phone lines through external hook-switch circuitry and an external diode bridge.

67. (New) The phone line side circuitry of claim 63, wherein said communication interface comprises circuitry coupled to said phone lines to detect ringing on said phone-lines and to control an off-hook state on said phone lines.

68. (New) The phone line side circuitry of claim 67, wherein said communication interface comprises DC termination circuitry coupled to said phone lines to provide an internal DC power supply to said phone line side circuitry.

69. (New) The phone line side circuitry of claim 63, further comprising an oversampled delta-sigma analog-to-digital converter configured to be coupled to analog signals received from said phone lines to convert said analog signals to a digital data stream in a pulse density modulation format.

70. (New) The phone line side circuitry of claim 63, further comprising encode circuitry within said isolation interface to generate a second encoded digital differential signal from a second digital data stream for transmission across the first and second isolation capacitors of said isolation barrier.

71. (New) The phone line side circuitry of claim 70, wherein said second encoded digital differential signal comprises second control data added to said second digital data stream.

72. (New) The phone line side circuitry of claim 71, wherein said second control data comprises phone line status information.

73. (New) The phone line side circuitry of claim 63, wherein the encoded digital differential signal includes both data information and control information.

74. (New) The phone line side circuitry of claim 71, wherein the second encoded digital differential signal includes both data information and control information.

75. (New) The phone line side circuitry of claim 63, wherein the phone line side circuitry is further configured to receive a clock signal from the powered side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor.

76. (New) The phone line side circuitry of claim 63, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

77. (New) The phone line side circuitry of claim 63, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

78. (New) Phone line side circuitry for digital direct access arrangement circuitry for terminating a phone line connection, comprising:

a communication interface that is capable of being coupled to phone lines;

an isolation interface that is capable of communicating digitally with powered side circuitry through an isolation barrier that comprises a plurality of isolation elements; and

decode circuitry within said isolation interface to generate a decoded digital signal from an encoded digital differential signal received from said powered side circuitry across at least two of the isolation elements of said isolation barrier, the at least two isolation elements comprising at least a first isolation capacitor and a second

isolation capacitor, and the isolation interface being capable of communicating bi-directionally across said first and second isolation capacitors of said isolation barrier;

wherein said encoded digital differential signal comprises control data added to a digital data stream;

wherein the phone line side circuitry is configured to receive a clock signal from the powered side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor;

wherein the phone line side circuitry is configured so that power is capable of being received by the phone line side circuitry from the powered side circuitry to generate at least one power supply within the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards; and

wherein the encoded digital differential signal includes both data information and control information.

79. (New) The phone line side circuitry of claim 78, wherein said encoded digital differential signal comprises framing data added to a digital data stream for data synchronization within said phone line side circuitry.

80. (New) The phone line side circuitry of claim 78, wherein signals communicated through said communication interface comprises analog data signals.

81. (New) The phone line side circuitry of claim 78, wherein said communication interface is configured to be coupled to phone lines through external hook-switch circuitry and an external diode bridge.

82. (New) The phone line side circuitry of claim 78, wherein said communication interface comprises circuitry coupled to said phone lines to detect ringing on said phone-lines and to control an off-hook state on said phone lines.

83. (New) The phone line side circuitry of claim 82, wherein said communication interface comprises DC termination circuitry coupled to said phone lines to provide an internal DC power supply to said phone line side circuitry.

84. (New) The phone line side circuitry of claim 78, further comprising an oversampled delta-sigma analog-to-digital converter configured to be coupled to analog signals received from said phone lines to convert said analog signals to a digital data stream in a pulse density modulation format.

85. (New) The phone line side circuitry of claim 78, further comprising encode circuitry within said isolation interface to generate a second encoded digital differential signal from a second digital data stream for transmission across the first and second isolation capacitors of said isolation barrier.

86. (New) The phone line side circuitry of claim 85, wherein said second encoded digital differential signal comprises second control data added to said second digital data stream.

87. (New) The phone line side circuitry of claim 86, wherein said second control data comprises phone line status information.

88. (New) The phone line side circuitry of claim 86, wherein the second encoded digital differential signal includes both data information and control information.

89. (New) The phone line side circuitry of claim 78, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.



90. (New) The phone line side circuitry of claim 78, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

91. (New) Digital direct access arrangement circuitry for terminating a phone line connection, comprising:

powered side circuitry operable to communicate digitally with phone line side circuitry across an isolation barrier that comprises a plurality of isolation elements, said digital communication comprising a first digital data stream transmitted as a first digital differential signal across at least two of the isolation elements of said isolation barrier through a first set of bi-directional connections, the at least two isolation elements comprising at least a first isolation capacitor and a second isolation capacitor; and

phone line side circuitry operable to communicate digitally with said powered side circuitry by a second digital differential signal transmitted across the same first and second isolation capacitors of said isolation barrier through a second set of bi-directional connections so that the first and second isolation capacitors bidirectionally transfer the first and second digital differential signals;

wherein the powered side circuitry is configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements; and

wherein the powered side circuitry is configured so that power is capable of being provided from the powered side circuitry to the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards.

92. (New) The digital direct access arrangement circuitry of claim 91, further comprising said isolation barrier coupled between said powered side circuitry and said

phone line side circuitry.

93. (New) The digital direct access arrangement circuitry of claim 91, wherein said first digital differential signal comprises an first encoded digital differential signal; and wherein said powered side circuitry includes encode circuitry coupled to said digital data stream to generate said first encoded digital differential signal for transmission across said first and second isolation capacitors of said isolation barrier; and wherein said phone line circuitry includes first decode circuitry to generate a first decoded digital signal from said first encoded digital differential signal.

94. (New) The digital direct access arrangement circuitry of claim 93, wherein said first encoded digital differential signal comprises control data added to said digital data stream.

95. (New) The digital direct access arrangement circuitry of claim 93, wherein said first encoded digital differential signal comprises framing data added to said digital data stream for data synchronization within said phone line side circuitry.

96. (New) The digital direct access arrangement circuitry of claim 91, wherein said second digital differential signal comprises a second encoded digital differential signal; and wherein said phone line side circuitry includes second encode circuitry coupled to said digital data stream to generate said second encoded digital differential signal for transmission across said isolation barrier; and wherein said powered circuitry includes second decode circuitry to generate a second decoded digital signal from said second encoded digital differential signal.

97. (New) The digital direct access arrangement circuitry of claim 96, wherein said encoded digital differential signal comprises control data added to said digital data stream.

98. (New) The digital direct access arrangement circuitry of claim 97, wherein said control data comprises phone line status information.

99. (New) The digital direct access arrangement circuitry of claim 91, wherein at least one of the first digital differential signal and the second digital differential signal includes both data information and control information.

100. (New) The digital direct access arrangement circuitry of claim 91, wherein the powered side circuitry is further configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor.

101. (New) The digital direct access arrangement circuitry of claim 91, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

102. (New) The digital direct access arrangement circuitry of claim 91, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

103. (New) Digital direct access arrangement circuitry for terminating a phone line connection, comprising:

powered side circuitry operable to communicate digitally with phone line side circuitry across an isolation barrier that comprises a plurality of isolation elements, said digital communication comprising a digital data stream transmitted as a first digital differential signal across at least two of the isolation elements of said isolation barrier through a first set of bi-directional connections, the at least two isolation elements comprising at least a first isolation capacitor and a second isolation capacitor; and

phone line side circuitry operable to communicate digitally with said powered side circuitry by a second digital differential signal transmitted across the same first and second isolation capacitors of said isolation barrier through a second set of bidirectional connections so that the first and second isolation capacitors bidirectionally transfer the first and second digital differential signals;

wherein the powered side circuitry is further configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor;

wherein the powered side circuitry is configured so that power is capable of being provided from the powered side circuitry to the phone line side circuitry to generate at least one power supply within the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards; and

wherein at least one of the first digital differential signal and the second digital differential signal includes both data information and control information.

104. (New) The digital direct access arrangement circuitry of claim 103, further comprising said isolation barrier coupled between said powered side circuitry and said phone line side circuitry.

105. (New) The digital direct access arrangement circuitry of claim 103, wherein said first digital differential signal comprises an encoded digital differential signal; and wherein said powered side circuitry includes encode circuitry coupled to said digital data stream to generate said encoded digital differential signal for transmission across said first and second isolation capacitors of said isolation barrier; and wherein said phone line circuitry includes decode circuitry to generate a decoded digital signal from said encoded

digital differential signal.

106. (New) The digital direct access arrangement circuitry of claim 105, wherein said encoded digital differential signal comprises control data added to said digital data stream.

107. (New) The digital direct access arrangement circuitry of claim 105, wherein said encoded digital differential signal comprises framing data added to said digital data stream for data synchronization within said phone line side circuitry.

108. (New) The digital direct access arrangement circuitry of claim 103, wherein said second digital differential signal comprises an encoded digital differential signal; and wherein said phone line side circuitry includes encode circuitry coupled to said digital data to generate said encoded digital differential signal for transmission across said isolation barrier; and wherein said powered circuitry includes decode circuitry to generate a decoded digital signal from said encoded digital differential signal.

109. (New) The digital direct access arrangement circuitry of claim 108, wherein said encoded digital differential signal comprises control data added to said digital data stream.

110. (New) The digital direct access arrangement circuitry of claim 109, wherein said control data comprises phone line status information.

111. (New) The digital direct access arrangement circuitry of claim 103, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

112. (New) The digital direct access arrangement circuitry of claim 103, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

113. (New) Powered side circuitry for digital direct access arrangement circuitry for terminating a phone line connection at a user end of a phone line, comprising:

a communication interface capable of being coupled to an external user end device;

an isolation interface capable of communicating digitally with user end phone line side circuitry through a user end isolation barrier that comprises a plurality of isolation elements; and

encode circuitry within said isolation interface to generate an encoded digital differential signal from a digital data stream for transmission across at least two of the isolation elements of said isolation barrier, the at least two isolation elements comprising at least a first isolation capacitor and a second isolation capacitor, and the isolation interface being capable of communicating bi-directionally across said first and second isolation capacitors of said isolation barrier;

wherein said encoded digital differential signal comprises control data added to said digital data stream;

wherein the powered side circuitry is configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements; and

wherein the powered side circuitry is configured so that power is capable of being provided from the powered side circuitry to the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards.

114. (New) The powered side circuitry of claim 113, wherein signals communicated through said communication interface comprise digital data signals, control signals and phone line status signals.

115. (New) The powered side circuitry of claim 114, wherein said communication interface comprises a digital serial port interface.

116. (New) The powered side circuitry of claim 113, wherein the encoded digital differential signal includes both data information and control information.

117. (New) The powered side circuitry of claim 113, wherein the powered side circuitry is further configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor.

118. (New) The powered side circuitry of claim 113, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

119. (New) The powered side circuitry of claim 113, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

120. (New) Powered side circuitry for digital direct access arrangement circuitry for terminating a phone line connection at a user end of a phone line, comprising:

a communication interface capable of being coupled to an external user end device;

an isolation interface capable of communicating digitally with user end phone line side circuitry through a user end isolation barrier that comprises a plurality of isolation elements; and

encode circuitry within said isolation interface to generate an encoded digital differential signal from a digital data stream for transmission across at least two of the isolation elements of said isolation barrier, the at least two isolation elements comprising at least a first isolation capacitor and a second isolation capacitor, and

the isolation interface being capable of communicating bi-directionally across said first and second isolation capacitors of said isolation barrier;

wherein said encoded digital differential signal comprises control data added to said digital data stream;

wherein the powered side circuitry is configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor;

wherein the powered side circuitry is configured so that power is capable of being provided from the powered side circuitry to the phone line side circuitry to generate at least one power supply within the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards; and

wherein the encoded digital differential signal includes both data information and control information.

121. (New) The powered side circuitry of claim 120, wherein signals communicated through said communication interface comprise digital data signals, control signals and phone line status signals.

122. (New) The powered side circuitry of claim 121, wherein said communication interface comprises a digital serial port interface.

123. (New) The powered side circuitry of claim 120, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

124. (New) The powered side circuitry of claim 120, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.



125. (New) Digital direct access arrangement circuitry for terminating a phone line connection, comprising:

powered side circuitry operable to communicate digitally with phone line side circuitry, said digital communication comprising a digital data stream transmitted across an isolation barrier that comprises a plurality of isolation elements;

phone line side circuitry operable to communicate digitally with powered side circuitry across said isolation barrier that comprises a plurality of isolation elements; and

encode and decode circuitry coupled to said digital data stream to generate an encoded digital differential signal for transmission and receipt across at least two of the isolation elements of said isolation barrier, the at least two isolation elements comprising at least a first isolation capacitor and a second isolation capacitor;

wherein said encoded digital differential signal comprises control data added to said digital data stream;

wherein communication across said isolation barrier is bi-directional across said first and second isolation capacitors of said isolation barrier;

wherein the powered side circuitry is configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements; and

wherein the powered side circuitry is configured so that power is capable of being provided from the powered side circuitry to the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards.

126. (New) The digital direct access arrangement circuitry of claim 125, further comprising said isolation barrier coupled between said powered side circuitry and said phone line side circuitry.

127. (New) The digital direct access arrangement circuitry of claim 125, wherein said powered side circuitry includes encode circuitry coupled to said digital data stream to generate an encoded digital differential signal for transmission across said at least two isolation elements of said isolation barrier and wherein said phone line circuitry includes decode circuitry to generate a decoded digital signal from said encoded digital differential signal.

128. (New) The digital direct access arrangement circuitry of claim 125, wherein said phone line side circuitry includes encode circuitry coupled to said digital data to generate an encoded digital differential signal for transmission across said at least two isolation elements of said isolation barrier and said powered circuitry includes decode circuitry to generate a decoded digital signal from said encoded digital differential signal.

129. (New) The digital direct access arrangement circuitry of claim 128, wherein said control data comprises phone line status information.

130. (New) The digital direct access arrangement circuitry of claim 125, wherein said phone line side circuitry has analog output signals that is capable of being coupled to phone lines through hook-switch circuitry and diode bridge circuitry.

131. (New) The digital direct access arrangement circuitry of claim 125, wherein the encoded digital differential signal includes both data information and control information.

132. (New) The digital direct access arrangement circuitry of claim 125, wherein the powered side circuitry is further configured to provide a clock signal to the phone line side circuitry through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor.

133. (New) The digital direct access arrangement circuitry of claim 125, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

134. (New) The digital direct access arrangement circuitry of claim 125, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

135. (New) Digital direct access arrangement circuitry for terminating a phone line connection, comprising:

powered side circuitry operable to communicate digitally with phone line side circuitry,  
said digital communication comprising a digital data stream transmitted across an  
isolation barrier that comprises a plurality of isolation elements;

phone line side circuitry operable to communicate digitally with powered side circuitry  
across said isolation barrier that comprises a plurality of isolation elements; and

encode and decode circuitry coupled to said digital data stream to generate an encoded  
digital differential signal for transmission and receipt across at least two of the  
isolation elements of said isolation barrier, the at least two isolation elements  
comprising at least a first isolation capacitor and a second isolation capacitor;

wherein said encoded digital differential signal comprises control data added to said  
digital data stream;

wherein communication across said isolation barrier is bi-directional across said first and  
second isolation capacitors of said isolation barrier;

wherein the powered side circuitry is configured to provide a clock signal to the phone  
line side circuitry through at least one of the plurality of isolation elements that is  
separate from the first isolation capacitor and the second isolation capacitor;

wherein the powered side circuitry is configured so that power is capable of being provided from the powered side circuitry to the phone line side circuitry to generate at least one power supply within the phone line side circuitry while still maintaining the isolation required by the phone line isolation regulatory standards; and

wherein the encoded digital differential signal includes both data information and control information.

136. (New) The digital direct access arrangement circuitry of claim 135, further comprising said isolation barrier coupled between said powered side circuitry and said phone line side circuitry.

137. (New) The digital direct access arrangement circuitry of claim 135, wherein said powered side circuitry includes encode circuitry coupled to said digital data stream to generate an encoded digital differential signal for transmission across said at least two isolation elements of said isolation barrier and wherein said phone line circuitry includes decode circuitry to generate a decoded digital signal from said encoded digital differential signal.

138. (New) The digital direct access arrangement circuitry of claim 135, wherein said phone line side circuitry includes encode circuitry coupled to said digital data to generate an encoded digital differential signal for transmission across said at least two isolation elements of said isolation barrier and said powered circuitry includes decode circuitry to generate a decoded digital signal from said encoded digital differential signal.

139. (New) The digital direct access arrangement circuitry of claim 138, wherein said control data comprises phone line status information.

140. (New) The digital direct access arrangement circuitry of claim 135, wherein said phone line side circuitry has analog output signals that is capable of being coupled to phone lines through hook-switch circuitry and diode bridge circuitry.

141. (New) The digital direct access arrangement circuitry of claim 135, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

142. (New) The digital direct access arrangement circuitry of claim 135, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

143. (New) Digital direct access arrangement circuitry for terminating a phone line connection, comprising:

phone line side circuitry operable to communicate digitally with an isolation barrier that comprises a plurality of isolation elements, said digital communication comprising a digital differential signal transmitted across at least two of the isolation elements of said isolation barrier through at least one bi-directional connection, wherein the at least two isolation elements comprise at least a first isolation capacitor and a second isolation capacitor, and wherein the phone line side circuitry comprises at least one digital to analog converter circuit operable to receive data transmitted across the isolation barrier;

power supply generation circuitry within the phone line side circuitry, the power supply generation circuitry coupled to at least one portion of the phone line side circuitry to provide a power supply to the at least one portion, the power supply generation circuitry operable to generate power from information transmitted across the isolation barrier; and

at least one clock signal within the phone line side circuitry, the clock signal being generated from clock information transmitted across the isolation barrier;

wherein communication across said isolation barrier is bi-directional across said first and second isolation capacitors of said isolation barrier.

144. (New) The digital direct access arrangement circuitry of claim 143, wherein said digital differential signal includes both data information and control information.

145. (New) The digital direct access arrangement circuitry of claim 143, wherein the clock signal is generated from clock information transmitted across the isolation barrier through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor.

146. (New) The digital direct access arrangement circuitry of claim 143, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

147. (New) The digital direct access arrangement circuitry of claim 143, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.

148. (New) Digital direct access arrangement circuitry for terminating a phone line connection, comprising:

phone line side circuitry operable to communicate digitally with an isolation barrier that comprises a plurality of isolation elements, said digital communication comprising a digital differential signal transmitted across at least two of the isolation elements of said isolation barrier through at least one bi-directional connection, wherein the at least two isolation elements comprise at least a first isolation capacitor and a second isolation capacitor, and wherein the phone line side circuitry comprises at least one digital to analog converter circuit operable to receive data transmitted across the isolation barrier;

power supply generation circuitry within the phone line side circuitry, the power supply generation circuitry coupled to at least one portion of the phone line side circuitry to provide a power supply to the at least one portion, the power supply generation circuitry operable to generate power from information transmitted across the isolation barrier; and

at least one clock signal within the phone line side circuitry, the clock signal being generated from clock information transmitted across the isolation barrier through at least one of the plurality of isolation elements that is separate from the first isolation capacitor and the second isolation capacitor;

wherein communication across said isolation barrier is bi-directional across said first and second isolation capacitors of said isolation barrier; and

wherein said digital differential signal includes both data information and control information.

149. (New) The digital direct access arrangement circuitry of claim 148, wherein each of said plurality of isolation elements of said isolation barrier comprises a capacitor.

150. (New) The digital direct access arrangement circuitry of claim 148, wherein at least a portion of said plurality of isolation elements of said isolation barrier each comprises a capacitor.